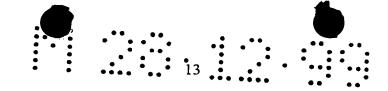
CLAIMS

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- A catalyst comprising a γ-alumina support coated with a first layer containing magnesium and, on the first layer, a second layer
 containing copper and, optionally, lithium.
 - 2. A catalyst as claimed in claim 1 containing, by weight, from 0.1 to 5% magnesium, from 2 to 10% copper, and from 0 to 5% lithium.
 - 3. A catalyst as claimed in claim 2 containing, by weight, from 0.1 to 2% magnesium, from 2 to 8% copper, and from 0 to 1% lithium.
- 4. A catalyst as claimed in claim 3 containing, by weight, 0.5 to 1.5% magnesium, from 3 to 6% copper, and from 0.1 to 0.3% lithium.
 - 5. A catalyst as claimed in any of claims 1 to 4 wherein the $\gamma\text{-alumina}$ has a surface area of from 50 to 220 m^2/g and an average particle size in the range 40 to 60 μm .
 - 6. A catalyst as claimed in claim 5 wherein the $\gamma\text{-alumina}$ has a surface area of from 80 to $180m^2/g$.
- 7. A process for preparing a catalyst which comprises impregnating 25 γ -alumina with a solution containing a magnesium salt, drying the product, and impregnating the product with a solution containing a copper salt and, optionally, a lithium salt.
- 8. A process as claimed in claim 7 wherein the salts are the chloride 30 salts.
 - 9. A catalyst produced by the process of claim 7 or 8.
- 10. A process for the catalytic gas phase oxychlorination of ethylene 35 which comprises reacting ethylene, hydrogen chloride and a source of oxygen in the presence of a catalyst as claimed in any of claims 1 to 6 and 9.



CLAIMS

- A process for preparing a catalyst which comprises impregnating
 γ-alumina with a solution containing a magnesium salt, drying the product, and impregnating the product with a solution containing a copper salt and, optionally, a lithium salt.
- 2. A process as claimed in claim 1 wherein the salts are the chloride 10 salts.
 - A catalyst produced by the process of claim 1 or 2.
- 4. A catalyst as claimed in claim 3 containing, by weight, 15 from 0.1 to 5% magnesium, from 2 to 10% copper, and from 0 to 5% lithium.
 - 5. A catalyst as claimed in claim 4 containing, by weight, from 0.1 to 2% magnesium, from 2 to 8% copper, and from 0 to 1% lithium.
- 20 6. A catalyst as claimed in claim 5 containing, by weight, 0.5 to 1.5% magnesium, from 3 to 6% copper, and from 0.1 to 0.3% lithium.
- 7. A catalyst as claimed in any of claims 3 to 6 wherein the γ -alumina has a surface area of from 50 to 220 m²/g and an average particle size in 25 the range 40 to 60 μm .
 - 8. A catalyst as claimed in claim 7 wherein the γ -alumina has a surface area of from 80 to $180 m^2/g$.
- 30 9. A process for the catalytic gas phase oxychlorination of ethylene which comprises reacting ethylene, hydrogen chloride and a source of oxygen in the presence of a catalyst as claimed in any of claims 3 to 8.

